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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/764,837	01/17/2001	Jonathan Foote	FXPL-01012US0	6501

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FLIESLER DUBB MEYER & LOVEJOY, LLP
FOUR EMBARCADERO CENTER
SUITE 400
SAN FRANCISCO, CA 94111

EXAMINER

SEVER, ANDREW T

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/764,837

Applicant(s)

FOOTE ET AL.

Examiner

Andrew T Sever

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-12,14 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 5,13 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the polarizing filter must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the differences in intensity and polarization as claimed in claims 12 and 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the methods of claims 15-18 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings as filed only show a method of determining the location of an object (although a human shaped object the drawings do not show a method of determining the location of a specific part of that object and a picture of an outstretched hand does not teach a method of determining its location, rather it only teaches that an object can be irregular in shape.)

Specification

4. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

On page 2 of the specification the applicant cites

“www.cc.gatech.edu/ccg/projects/perceptive/perceptive_cga/perceptive_cga.html”. this is a hyper link and is also no longer a valid hyperlink.

Claim Objections

5. Claim 15-18 recites the limitation “person” in claim 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 only claims a target, not a person.

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With regards to claim 18, claim 6 also does not specify that anything is to appear on the translucent screen, besides the shadow of the target. Inherently the targets location is going to alter how its shadow appears on the translucent screen and for purposes of prior art this is what the claim will be assumed to be claiming.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1-4, 6-12 14, and 16-18 are rejected under 35 U.S.C. 102(a) as being anticipated by Leibe et al. ("The Perceptive Workbench" as provided by applicant's IDS).

Leibe as provided by the applicant teaches in section three a system for determining the location of a target, which includes a plurality of infrared light sources (Leibe teaches that a ring of seven infrared illuminators is mounted on the ceiling surrounding the workbench), a projection surface with two sides oriented so that the light source illuminate one side of it, a target which can be placed entirely between the light source and one of the projection surface (such as a hand or another object), and an imaging device located on the opposite side of the projection surface for imaging the infrared shadow produced by the target in the light produced by the light sources as is also claimed in applicant's claim 2. Leibe teaches the imaging is done by a standard b/w surveillance (video) camera with a filter that makes it impervious to visible light located

on its lens as is claimed by applicant's claims 3 and 4. Leibe further teaches in section 5 that the shadow imaging is done by a single camera under the desk (additional imaging beyond the scope of claimed invention and irrelevant is done by an additional camera). Leibe also teaches that each of the infrared lights on the ring are sequenced on and off so that the imaging device images the shadow produced by individual ones of the light source.

With regards to applicant's claims 6, the existence of the system/apparatus taught by Leibe implies the existence of the method of using it as is claimed in applicant's claims 6-11. With regards to applicant's claim 12 if the lights are cycled (one on while the rest are off or some combination thereof) inherently at least one light source has an intensity (that of zero), which is different then that of the light emitted by another one of the plurality of light sources. With regards to applicant's claim 14, 16 and 17, Leibe teaches in section 6 in the 6th paragraph that just the IR system (overhead IR lights and IR camera underneath the translucent screen (desk)) is able to calculate the location of a person's arm/extremities, which would include determining the distance between the target (extremity) and the translucent screen. With regards to applicant's claim 18, it is inherent that moving the target would alter the shadow that appears on the translucent screen.

Allowable Subject Matter

8. Claims 5 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claims 5 and 13 claim a system and a method respectively of determining the location of a target using a plurality of light sources which have polarizing filters placed on them and in the case of claim 13 having the polarization of individual light sources differ. This was not found in the prior art as a means of differentiating which particular lamp was illuminating the target at a particular time (instead of the sequenced lighting of the light sources as claimed in other claims.) Therefore these two claims would be allowable if written in independent form including all the matter of the rejected base claims.

9. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Leibe et al. does not teach determining the location of the top of a person's head, rather Leibe only concentrates on inanimate objects or an arm. Leibe does teach that his invention is applicable to such environments such as the CAVE system, however, Leibe does not teach the specifics and one with ordinary skill in the art would not have been able without undue experimentation able to integrate Leibe system into a CAVE type system based only on Leibe. Since no other prior art alone or combinable with Leibe et al. taught determining the location of a top of the person's head along with the rejected base claims, claim 15 would be allowed if written in independent form including all the matter of the rejected base claim and correcting the above mentioned objected material.

Conclusion

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10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 4,468,694 to Edgar teaches an apparatus that uses shadow and parallax to determine the location of an object on a surface similar to that taught by Leibe et al.

US 6,359,612 to Peter et al. teaches an interactive system in figure 1 that includes an IR light source (4), an IR video camera (5) which images the shadows produces in the IR light by a user (7) and/or a pointer (19). Peter et al. does not place the video camera behind the screen, but otherwise teaches the claimed invention and could be combined with Leibe et al. to reject the claimed invention with an obviousness type rejection.

US 6,341,016 to Malione

US 5,023,709 to Kita et al.

US 6,339,748 to Hiramatsu


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Sever whose telephone number is 703-305-4036. The examiner can normally be reached M-TH 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams can be reached at 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

AS
March 24, 2003



RUSSELL ADAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800